CORE
Metadata, citation and similar papers at core.ac.uk
Provided by UPCommons. Portal del coneixement obert de la UPC

INTEGRATED URBAN LANDSCAPE. NATURE AS AN ELEMENT OF TRANSITION SPACE COMPOSITION

Patrycja Haupt
PhD Arch., Assistant Professor,
Chair of Housing Environment, Institute of Urban Design,
Faculty of Architecture, Cracow University of Technology
ul. Podchorążych 1, 30-074 Cracow
ph@pro.onet.pl
a-32@pk.edu.pl
+48 12 6282433
+48 12 6282022 (F)

Key words: Urban landscape, Transition space, Architecture vs. Nature

Abstract

The paper explains the genesis, methods and consequences of introducing elements of nature into contemporary cityscape. It shows their significance in creating a new image of the city. The discussion is conducted on the basis of joined urban theories such as: softening the city edge, fluency of space, narrative paths, multilayer structure of urban space. Contemporary forms of relationships between the building and its surroundings are presented in order to prove the tendencies in shaping the connection zone between the building and the city simultaneously, influenced by both of those reactants. This zone, observed as transition space between the building and its surroundings, is constantly changing and growing, generating a variety of urban spaces adjoining, interlacing, penetrating the building structure. It also creates an area of introducing nature as compositional and functional element. The paper discusses the examples of the new types of relationships between architecture and nature emerging in contemporary urban space.

Contemporary urban space

The space of urban areas that come into being in the contemporary times is characterised by a polymorphous structure. It consists of – according to contemporary concepts – the physical, material structure of the city, and the non-physical layer – soft, cultural, informative in character. On one hand it stands for geometry, composition, proportion, shape, colour, perception, which could be determined by the notion of 'pure form', as defined by W. Kosiński[1], where the conscious perception of components of spaces and their juxtapositions evokes a subconscious aesthetic sensation. In this case the city's spatial elements which interact with each other should be regarded as the material that cities are made of. On the other hand, however, the nature of the urban space could be search for in intangible values, such as cultural or historical heritage, and via the conditions of life. The interest in other dynamic factors has been growing –

[1] W. Kosiński, *Miasto i piękno miasta,* Cracow University of Technology, 2011, p. 155.

movement, changeability of nature, connections and relations, which complete the permanent – spatial elements of the city structure. It is depicted as an active environment, for the meaning of which time is crucial. *'Grasping space as objective and motionless emptiness, against the background of which objects are arranged, has been replaced with depicting it as a variable in time, filled with forces of all sorts of influences and depending on the observer*,'[2] Lucyna Nyka writes. This allows to unify the once opposing layers, constituted by architecture and nature. Through the prism of interactions between architecture, nature, and user there arises a dynamic organism of the urban space – evolving in time and adaptable to the phenomena that occur in its community.

Urban space as landscape

Interpretation of the urban space as a specific landscape finds it beginnings in the first decades of the 20th century. It was then, when the reception of the city was connected with the narration of the road, that the notion 'landscape' - until then reserved for nature - started to refer to the city, as well. *'The landscape of the city has all the crucial properties of landscape. It is designed to the same minor extent as nature itself is (…); therefore, it pronounces itself unconsciously,'* [3] as Kracauer writes when studying the modernist Berlin. Lucyna Nyka emphasises that this phenomenon is convergent in time with the annulment of the historical opposition between a structure and its surroundings – architecture and nature. Simultaneously new concepts were emerging, linking space with the community and pointing to the role of the direct experience in the process of creating the urban space.

The current concepts of interpretation of the city are based on perceiving it as an environment. According to Lenartowicz, 'the subject matter of architecture is the physical space of the environment of man's life, and to be more precise the construction environment, and – which not all architects actually realise – the life of man itself in the scope connected with the consciously shaped environment [4].

The vision of the city as an evolving environment, gradually gave rise to a conviction that the objective of the contemporary urban planning is not so much defining of structures as initiation of processes and creation of conditions for their operation. Jean Nouvel writes, 'things are in the state of constant processes of formation and disintegration. We need to discover this evolutionary process in order to evaluate changes, to cooperate with them, or to act against them.' Presenting the city as a dynamic environment introduced new threads to the understanding of the urban space. Its physical components constitute an initiation, a stage for the transformations and events to come. Both urban spaces and buildings – fluid and topographical – create flexible environments completed with events, motion, and the layer of media messages.

The dynamic composition of the urban landscape has also become a designing concept today, fostering integration of the city. Creation of a place, a space a social space in the urban

[2] L. Nyka, *Od architektury cyrkulacji (…),* op.cit.
[3] G. Gilloch, *Siegfried Kracauer,* Polity, 2015, p. I.1.2.
[4] K.J. Lenartowicz, *O psychologii architektury. Próba inwentaryzacji badań, zakres przedmiotowy i wpływ na architekturę,* Publishing House of the Cracow University of Technology, Cracow 1992, p. 30.

network, has been becoming one of the elements of strategies of development and revitalisation of urbanised areas. The reason for this is the potential that resides in individual layers of the urban landscape: the diversity of physical forms, the hybrid nature of functional structures, activity and motion of people, the plane of artistic and media message. This multidimensional space is also inscribed by elements of nature, which can initiate heterogenic forms of events in the space of the city understood as the urban landscape.

Integrated landscape

Social awareness of consequences of uncontrolled sprawl of cities has made us realise that the need of sustainable development is obvious. In compliance with its message, elements of nature, understood as the material for architecture, are not just landscape, its aesthetic completion any more, but they are used for practical purposes. Therefore, specific spatial forms of integrated landscape are formed, where nature becomes an inseparable part of an architectural composition. They appear in the urban space as pioneer solutions, images in response to requirements connected with the implementation of sustainable solutions. On one hand they derive from the concept of protection of nature and introducing its elements in the urban space, as a tool allowing to prevent negative phenomena. On the other hand they manifest a broadened meaning of the notion of *sustainable environment of man's life*. It is based on active participation in the community of the city, on building of identity and affiliation, as well as on participation in its development.

Understanding the urban environment as a place of man's life is responsible for the fact that the current concepts of forming urban space are based on the improvement of its quality. One of the factors that foster man's health and wellbeing is nature.[5] Nature is becoming an inseparable part of the architectural composition, the consequence of which is the creation of forms of integrated landscape of the urban space. They consist of stable and variable components, which are interlinked on the spatial as well as technological plane. Nature, understood as both an aesthetic and utilitarian element, becomes a subject of composition of parts of the urban landscape. It happens through the introduction of elements of nature as an integral part of a building in the form of walls or flat roofs, an element of a transition space in the contact point of the building with its surrounding area. This way they form a fragment of a technological system that support the energy and/or water management in a specific building structure. Nature is then introduced into the urban tissue as a green element linked in spatial and technological terms with the architecture that accompanies it, in the form of utilitarian landscapes, where elements of nature in the zone adjacent to the building constitute an integral part of the bioclimatic system of the structure, forms of the reclaimed space, restored to nature, where degraded areas are transformed into urban green areas, or in the form of garden-buildings, where they become a material for the coating of the elevation. The place of these combinations is the space of contact between the building and its surrounding area, which according to the contemporary trends of shaping of an architectural form in symbiosis with nature transforms from a contact plane into an extended interspace sphere.

[5] Schneider-Skalska G., Kształtowanie zdrowego środowiska mieszkaniowego, Cracow 2004, pp. 66-87.

Contact spaces vs. shaping of the urban landscape

Contemporary buildings are not only pictures against some background, observed through the prism of the positive space, or walls that could limit the space in its negative version. Buildings themselves create urban space by blurring the lines between interiors and the external space. The edge of the building becomes obliterated, the accessible space penetrates its interiors, and its function and spatial arrangement 'flows' outside, and in doing so composes the intermediary space at the contact point with the surroundings. And this is a territory of the most legible changes, as a place of interferences between stable elements – architecture, and unstable ones – nature, motion of people, message … The described area of interferences creates a buffer between the city and the enclave of the building interiors, constituting an extended form of intermediary space, whose limits are difficult to define.

The intermediary (transition) space, also dubbed interspace, refers to the sphere of interactions between the subject and the object. The interest in the transition space in the scale of the city reaches back to the first decades of the 20th century. Descriptions by S. Kraucauer and W. Benjamin expose the role of enclaves, hidden spaces which constitute links between buildings. In the 1960s R. and Ch. Eames launched experiments aiming at the relativisation of interiors and external space of the building, designing fittings combining internal and external spaces. At that time there emerged a concept of unitary urban planning, introduced the group of the so-called situationists, representatives of one of the trends of the conceptual art. It constituted one of four main concepts referring to the study of 'passing transitions between different climates'. Its visions presented by means of pictures, mobile structures and buildings drew the space of the city inside.

J. Krenz describes interspace as an area of relations between individual elements of a work of architecture, at the contact point of the external and internal space, at the contact point of forms, at the contact point of functions, etc. He claims that this is the place where messages equipped with some definite dynamism appear, which decide about distinctness, creating a sort of 'temperature' – in terms of meanings and emotions, forms and aesthetics.[6] He calls interspace a sphere of a hidden dimension of architecture, of a direct impact of a building. Looking through its prism allows to perceive architecture without being stopped by external manifestations of its work – the shell, the form, but to perceive it as an integral element of the spatial environment.

Ambiguous relations between the inside and the outside manifest themselves in the contemporary architecture in spectacular links between a building and its natural landscape, but most of all they allow to shape a new type of relations with the urban space. Berrizbeitia and Pollak describe and classify these relations, studying the link between a building structure and landscape, understood also as an urbanised one.[7] J. Rendell sees one of the dominating properties of the contemporary city in this interaction: 'the inside and the outside intermingle, they jointly shape the urban tissue and are experienced again as complementary aspects of the

[6] J. Krenz, Architektura międzyprzestrzeni, 2003, http://www.pg.gda.pl/~jkrenz/Publikacje/Miedzyprzestrzen.html, access on 05.08.2015

[7] A. Berrizbeitia, L. Pollak, Inside Outside: Between Architecture and Landscape, Rockport Publishers, 2003.

everyday life'.[8] Numerous designs of contemporary buildings exhibit the pursuit of fluidity of the connection with the surrounding area.

Types of integrated landscapes

In cases where interspace created thanks to reciprocal functional and compositional interactions between architecture and nature constitutes simultaneously an area open for circulation, which permeates the structure of the building, an additional space of movement paths is created. The area of a contact of the building and its surroundings constitutes here an obliterated edge of the city in the shape of a form accessible for users of the space which has been inscribed with natural elements for their aesthetic and utilitarian properties. The building is designed as a sequence of spaces directed by the architect, as a stage for activities undertaken by its user. The space of movement paths, which unifies the building with its surroundings, is created through the introduction of natural elements on the plane of its covering, creating a new topography. An integrated composition of architecture and nature can also intermingle with the spatial structure of the building, transforming it into a movement path combining external and internal spaces connected with each other. The last type of relations is the introduction of natural elements to the interiors of the building in the form of internal enclaves constituting a form of generally accessible interiors extending the urban space, but located within the spatial structure of the building.

Functional landscape

Examples of utilitarian landscape are characterised by solutions where elements of nature more and more frequently become components of systems that support heating or cooling of the building, as well as its water management. Requirements pertaining to biologically active surfaces of plots of land where architectural structures are located, as well as the development intensity in some locations, are responsible for the fact that there emerges a reserve of land, beyond the developed surfaces. It can be used by introducing natural elements such as greenery or water reservoirs, constituting an attractive recreational area accompanying a project, which at the same time constitutes a part of its ecological system of the city or the environmental technologies applied in the building. An example of such an area is the garden Jardin Charles Trénet, which was organised in 2013 in Paris as back-up facilities for the structures of the special zone of ZAC de Rungis (Fig. 1.1). The garden accompanies residential development and is accessible to the public. Green areas have been maximised by forms of land relief, thanks to which the area can be recognised as sufficient for the local enrichment of biodiversity. The water reservoir and rushes actively participate in the process of filtration and recovery of potable water as well as rainwater, which in over 50% is reused within the territory of the project. The project and its green areas are also part of a network of pedestrian routes, which enable the use of public transport and services located within the perimeter of the investment. The solutions of the integrated landscape interact not only in the scale of the

[8] J. Rendell, Between Architecture, Fashion and Identity, Architectural Design 11/2000, p. 10.

building or complex, but also in the scale of the city thanks to the introduction of biodiversity in the form of ecological corridors, reduction of the effect of the urban heat island, creation of green infrastructure, and they can also constitute part of the system of protection against natural disasters. They foster the production of ecological food. In the scale of the complex, they improve the microclimate, they support systems of rainwater management, as well as they can constitute a place of obtaining renewable energy. Additionally, they improve the microclimate of interiors of buildings, as well as they can influence the thermal properties of elevations.

Reclaimed space

One of the fundamental measures observed in the contemporary urban space are the ones undertaken within the scheme of revitalisation processes. Their direct objective is to lead degraded areas out of crisis, but in the global scale the renewal of urban areas obtains a broader meaning. By means of intensification of use of areas which have been already utilised, the so-called brownfields, economic, social and environmental benefits are achieved. Positive examples of such measures combine respect for the heritage of a specific area with the introduction of elements of nature, which take part in bioclimatic processes that occur at the contact point of the building and its surroundings. One of such investments is the municipal park which in the period 2004-2012 was transformed from wasteland after the automotive industry plant in Turin. Parco Dora (Fig. 2) constitutes a link between three post-industrial areas of 7, 6, and 9 ha, located in the vicinity of the city centre. The main assumptions of the designers, Latz + Partner, was to link residential complexes with a generally accessible recreational green area, and most of all to preserve its legacy, inscribed in the history of Turin. Within the territory of the park, fragments of steel structures of halls dating back to the end of the 19th century and the beginnings of the 20th century were preserved. Today, they serve as roofs over sports fields, as well as maintain the forms of pedestrian trestle bridges, which allow to increase the surface area of the park, as well as provide the chance to admire new skylines. The steel structures intermingle with low greenery, tall greenery, as well as creepers. Water is introduced in the recreational spaces, as well. The use of natural areas for the purposes of new investments is limited; so is the need of road transport, which reduces air pollution, as well as emission of carbon dioxide to the atmosphere. The introduction of elements of nature in revitalised areas may constitute a tool in the reduction of unfavourable climatic effects, as well as improve the quality of air in the adjacent area. The aesthetic attractiveness and the quality of the environment of man's life improve, too, thanks to the opportunity to be in contact with nature.

Garden buildings

Nature in the city, besides areas allocated to recreational grounds, can constitute an integral part of the architectural composition, also in the development zones. In accordance with these assumptions, one of the forms of buildings are those in which the structure of the contact point between the building and its surroundings is constituted by a combination of architectural elements and nature. An example of a garden building with a living façade is 25 Verde, a

residential building erected in 2012 according to the design by Luciano Pia (Fig. 3). The author calls its ‘a house between trees’. On a steel structure of the façade plant pots have been arranged, with carefully selected species of trees and shrubs. The plants incessantly grow and transform, thanks to which the building seems to be subjected to the effects of times of the day and seasons of the year, just like nature itself. The function of the façade is securing comfort, peace and quiet in the interiors, separating them from the space of the street. The composition of the elevation also reduces differences in temperature. Thanks to this solution a beneficial microclimate has been guaranteed, as well as the penetration of noise and pollution inside the building has been reduced. In the scale of the city, this green buffer reduces the quantity of carbon dioxide and emits oxygen. The building constitutes a substitute of recreational grounds in this intensely developed part of the city. The intensity of development, which constitutes a potential of the city, simultaneously brings about negative climatic effects, such as the occurrence of the urban heat island, problems of rainwater management, air pollution. Garden buildings, where elements of nature and architecture are integrated, besides the network of green infrastructure are a form of measures undertaken in order to improve the condition of urbanised environment, maintaining the urban character of the space at the same time. Garden buildings assume different forms, starting from skyscrapers, through buildings with green walls of all sorts of structure, to openwork forms. Their essence is the introduction of elements of nature in the space of the contact point between the building and its surroundings, making use of their usefulness in bioclimatic processes inside buildings and in urban spaces.

New topography

Embedding buildings in the ground, using green roofs in order to improve thermal insulation of a building, as well as for the sake of supporting water management, has brought about the occurrence of parts of landscape exhibiting new topography forms. The urban space becomes more diversified and stratified, allowing to perceive it from the ground level as well as from the tops of the buildings introduced in it. Designing buildings has become a pretext for experiments with land geometry, and thanks to the nostalgic attachment of man to natural areas of nature characterised by the diversity of land relief these experiments, despite the requirements of universal accessibility, are desirable in the urban environment. An example of such an assumption may be the recreational space located at the roof level of Malmö’s largest shopping centre (Fig. 1.6). In accordance with the concept of the designers from the Wingårdhs office, it has been bestowed with a unique character by a new, different land relief, making use of natural elements resembling a park. In isolation from the level of entrances to the building, in contrast to the monotony of the flat surroundings, a land relief consisting of dynamically inclined planes has been proposed here. They are covered with grass, and walking paths are finished with wooden lining. The entire project is completed with some street furniture and forms of exits, pavilions, which combine the style of the elevation with the character of the roof by the materials used. The multi-level space is perfect for strolls as it offers vast views of the city skyline. They can be admired from specially designed stairs, which here and there are incorporated in the inclined planes of the artificial hills. The introduction of this new topography creates a possibility of

extending the urban space, thanks to which new spaces perfect for the introduction of natural elements come into being. They fulfil a utilitarian function for the building which they are part of, simultaneously constituting a scenery for new spaces. Different functional, aesthetic and semantic layers emerge, and so do links between them. The diversity of these forms decides about the different character of the parts of the city subjected to this process.

Structure of connections – passageways

Contemporary public spaces are characterised by the liquidity of the border between the building and the city. Buildings whose spaces are rendered accessible to users constitute an addition, an extension of the urban space. Their forms are shaped in a fashion that fosters movement, inviting to make use of new spaces, connections, views. They become part of the passageways of users of the space, offering new scenarios of discovering the changeable urban landscapes to them. This way, a building, its form, its intermediary spaces, and frequently its interiors, are absorbed by the structure of pedestrian passageways. One of such pioneer structures is the Polyvalent Theatre (Fig. 1.4). Located in the suburbs of Lille, this building is intended to be used for the purposes of organisation of cultural events in the city, but on an everyday basis it is a centre of the community of this city quarter. Besides activities relating to the organisation of meetings, trainings and shows, the structure constitutes a functional garden. Its surface area comprises the surroundings of the building connected with it interiors by means of a glazed patio, but also the roof. It has been designed as a terraced hill with fields where individual species of crops are grown. Both the flat roof and the elevation structure reduce the consumption of energy used for heating and cooling of the building. The building has been designed so as to enable to move between the open space, the flat roof and the internal gardens without any obstacles. A walking path has been designed, resembling a screenplay, enabling to observe the surrounding area from different perspectives. It is also addressed to residents, who actively participate in the cultivation and tending of the greenery of the theatre. What is characteristic for the structure and the walking paths is the obliteration of limits between architecture and its surroundings, which became their mutual complementation. In this case, elements of nature constitute a part of the road scenery, which makes walking around the building similar to taking a stroll in the external space, a park, a square. By enabling contact with nature, as well as by introducing biodiversity, they support the functioning of the building, taking part in the energy and water management systems.

Internal enclaves of the building integrated with the surrounding area

The phenomenon of intermingling of the space of the city with a building by allowing to get around inside the building has its effect on the occurrence of new forms of the urban space. Public spaces are extended by interiors of buildings, shaping their forms known from the theory of urban planning: a street, a piazza, or – having introduced elements of nature – a square or a park. Elements of nature are frequently encountered in the forms of internal recreational yards in office spaces, constituting a continuation of the surroundings. An example of such an enclave

constitutes a part of the weapon factory in St. Etienne in the south of France, converted into a design centre complex (Fig. 1.5). The authors of the design implemented in 2010 are architects from the group LIN Architectes: Finn Geipel and Giulia Andi. Individual parts of the complex are interlinked with forms of the public space, piazzas, courtyards, and gardens. The latter are located inside the new building. They have a form of a roofed circulation path, which in this section has been given a recreational character. The generally accessible space of the garden constitutes one of the parts of a route that intersects this project. It has been given a character that imitates natural landscape. The space of movement is demarcated by a wide path made of hardened soil, whose edges are freely covered with lush vegetation. Such a composition contrasts with hardened orderly planes of public spaces, where plants appear only occasionally in the form of rhythmical lines that emphasise movement directions.

The image of continuity of the urban space attracts parts of building interiors in the form of enclaves. Simultaneously, they constitute a form of public space so far adopted in closed buildings of a specific intended use, greenhouses, palm houses. It is connected with the surrounding area, or it forms new forms of relations with the urban context. And there, elements of nature are also used, influencing the quality of air and thermal comfort of the interiors.

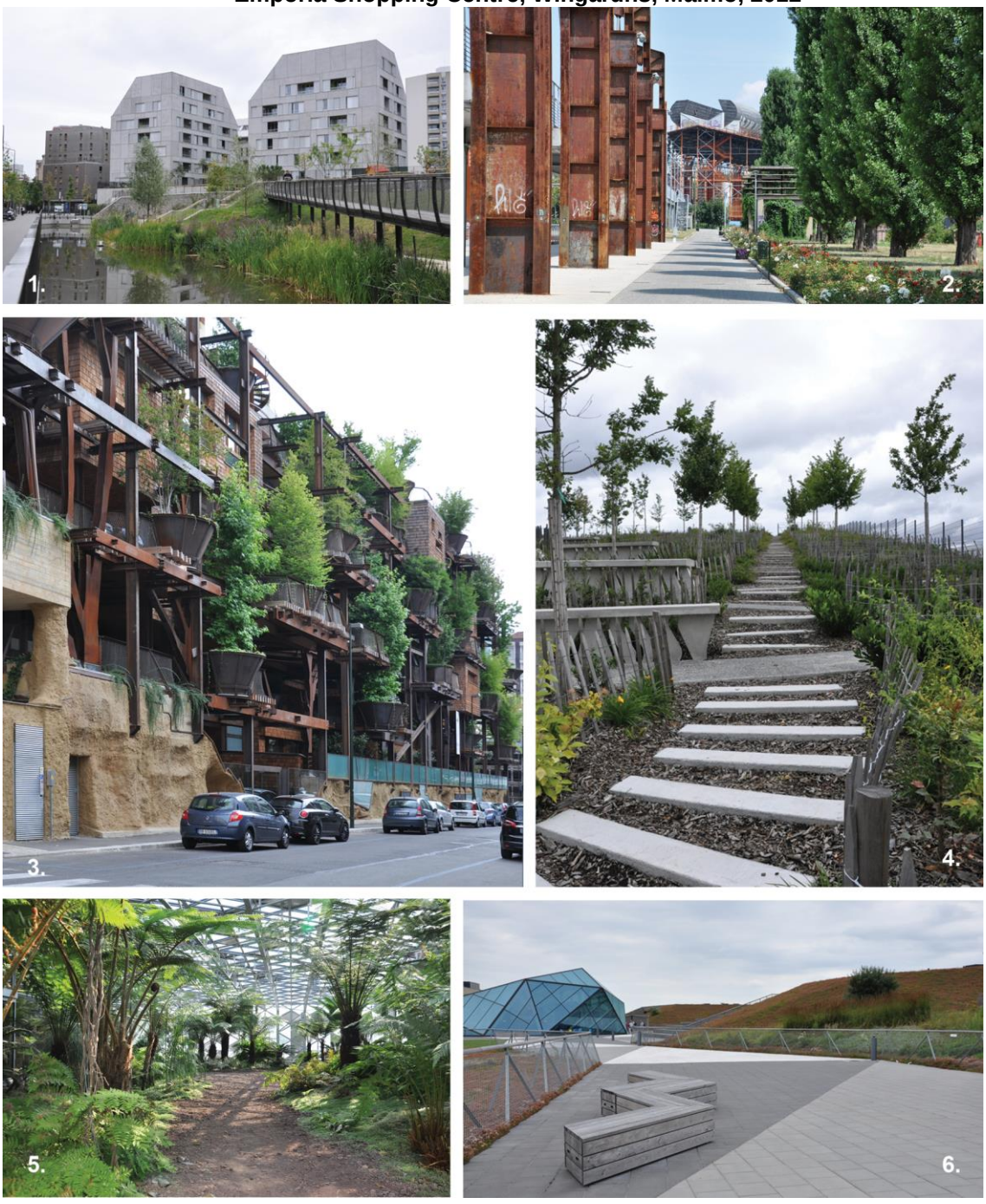
Summary and conclusions

The consequence of the application of new biotechnological solutions presented in this paper is the occurrence in contemporary architectural projects, especially in extensive flat roofs and gardens, of new geometry, changing the spatial shape of the building, which appears in the form of an integrated coating consisting of a wall and a ceiling which form a whole. Its seems that in such cases there is a need to change the terminology and to create a new method of describing wall barriers.

Integration of a building with elements of nature creates new compositional relations. Structures embedded in the ground create new tectonic forms. The boundary between interiors and the surrounding area is blurred by the appearance of the spaces of intermediary spheres, integrating an architectural structure with its neighbourhood. Thus a composition is created which makes an impression of the continuity of space and the surrounding area by the penetration of the building interiors by natural elements. An intermediary space comes into being – a fluid contact zone – an area of reciprocal interactions between a building and its surroundings.

The concept of the city as the environment of man’s life is based on the equivalent significance of spatial layers, as well as cultural and social values. New guidelines should be introduced to govern urbanisation processes, taking into account the relations occurring in the triad: architecture – nature – man, and development strategies of cities should be based on the knowledge of the relations between individual elements of the triad, aiming to maintain, build, or restore their balance.

Figure 1. Types of integrated landscapes: 1. Functional landscape - Jardin Charles Trénet, ZAC de Rungis, Paris, 2013, 2. Reclaimed space - Parco Dora, Latz + Partner, Turin, 2004 -2012, 3. Garden buildings - 25 Verde, Luciano Pia, Turin 2012, 4. Circulation path - Polyvalent Theatre, Lacaton & Vassal, Lille, 2013, 5. Internal enclaves - Cité du Design, LIN Architects, St. Etienne, 2009, 6. New topography – Emporia Shopping Centre, Wingårdhs, Malmö, 2012



Source: Photo: the Author

References

Berrizbeitia, Anita, **Pollak** Linda. *Inside Outside: Between Architecture and Landscape*, Rockport Publishers, 2003.

Gilloch, Graeme. *Siegfried Kracauer*, Polity, 2015.

Kosiński, Wojciech. *Miasto i piękno miasta*, Cracow University of Technology, 2011, p. 155.

Krenz Jacek. *Architektura międzyprzestrzeni*, 2003, http://www.pg.gda.pl/~jkrenz/Publikacje/Miedzyprzestrzen.html, access on: 05.08.2015

Lenartowicz, Józef, Krzysztof. *O psychologii architektury. Próba inwentaryzacji badań, zakres przedmiotowy i wpływ na architekturę*, Publishing House of the Cracow University of Technology, Cracow 1992.

Nyka, Lucyna. *Od architektury cyrkulacji do urbanistycznych krajobrazów*, Publishing House of the Gdańsk University of Technology, Gdańsk 2006.

Rendell, Jane, *Between Architecture, Fashion and Identity*, Architectural Design 11/2000, p. 10.

Schneider-Skalska, Grażyna. *Kształtowanie zdrowego środowiska mieszkaniowego*, Cracow 2004.

Schneider-Skalska, Grażyna. *Zrównoważone środowisko mieszkaniowe: społeczne, oszczędne, piękne*, Cracow 2014.